24sep03 11:40:33 User208600 Session D1594.1

File 155:MEDLINE(R) 1966-2003/Sep W2 (c) format only 2003 The Dialog Corp.

| Set | Items | Description |
|---|---|---|
| S1 | 11232 | GLUTAMYLTRANSFERASE OR GLUTAMYL(W)TRANSFERASE OR TRANSGLUTAMINASE |
| S2 | 177 | STREPTOVERT? |
| S3 | 24 | S1 AND S2 |

3/6/1 15291221 22755935 PMID: 12593675
Thermal stabilization of trypsin by enzymic modification with beta-cyclodextrin derivatives. Aug 2003

3/6/2 15192525 22617502 PMID: 12732581
Production of native-type Streptoverticillium mobaraense transglutaminase in Corynebacterium glutamicum. May 2003

3/6/3 14613518 22401437 PMID: 12514016
Secretion of active-form Streptoverticillium mobaraense transglutaminase by Corynebacterium glutamicum: processing of the pro-transglutaminase by a cosecreted subtilisin-Like protease from Streptomyces albogriseolus. Jan 2003

3/6/4 14334267 22177377 PMID: 12190095
Gliadin is a good substrate of several transglutaminases: possible implication in the pathogenesis of coeliac disease. Jul 2002

3/6/5 14236798 22313549 PMID: 12221081
Crystal structure of microbial transglutaminase from Streptoverticillium mobaraense. 09 07 2002

3/6/6 11620481 99053680 PMID: 9839945
Bacterial pro- transglutaminase from Streptoverticillium mobaraense--purification, characterisation and sequence of the zymogen. Nov 1 1998

3/6/7 11507811 98394225 PMID: 9726162
In situ antigen immobilization for stable organic-phase immunoelectrodes. Aug 15 1998

3/6/8 11473491 98357220 PMID: 9692191
Molecular cloning of the transglutaminase gene from Bacillus subtilis and its expression in Escherichia coli. Jun 1998

3/6/9 11453391 98336622 PMID: 9672751
Purification, characterisation, and gene cloning of transglutaminase from Streptoverticillium cinnamoneum CBS 683.68. Apr 1998

3/6/10 11368995 98249869 PMID: 9570830
Microbial transglutaminase -mediated synthesis of hapten-protein conjugates for immunoassays. May 1 1998

3/6/11 10983835 97336961 PMID: 9193708
A fluorescent substrate of transglutaminase for detection and characterization of glutamine acceptor compounds. Jun 15 1997

3/6/12 10969159 97321857 PMID: 9178559
High-level expression of the chemically synthesized gene for microbial transglutaminase from Streptoverticillium in Escherichia coli. May 1997

3/6/13 10657162 97005819 PMID: 8853118
Influence of gelatin matrices cross-linked with transglutaminase on the properties of an enclosed bioactive material using beta-galactosidase as model system. Aug 1996

3/6/14 10336999 96139329 PMID: 8547351
Enhanced susceptibility to transglutaminase reaction of alpha-lactalbumin in the molten globule state. Jan 4 1996

3/6/15 09565752 21347807 PMID: 11453780
Purification and substrate specificity of transglutaminases from blood and Streptoverticillium mobaraense. Jul 2001

3/6/16 09388882 21153247 PMID: 11231294
Protein-glutaminase from Chryseobacterium proteolyticum, an enzyme that deamidates glutaminyl residues in proteins. Purification, characterization and gene cloning. Mar 2001

3/6/17 09250123 20564095 PMID: 11111157
Lysine-rich histone (H1) is a lysyl substrate of tissue transglutaminase : possible involvement of transglutaminase in the formation of nuclear aggregates in (CAG)(n)/Q(n) expansion diseases. Sep-Dec 2000

3/6/18 09225692 20536493 PMID: 10965040
Substrate specificity analysis of microbial transglutaminase using proteinaceous protease inhibitors as natural model substrates. Sep 2000

3/6/19 09081296 20378321 PMID: 10923799
Overproduction of microbial transglutaminase in Escherichia coli, in vitro refolding, and characterization of the refolded form. Jun 2000

3/6/20 09021087 20314638 PMID: 10854600
Use of microbial transglutaminase for the enzymatic biotinylation of antibodies. Jun 23 2000

3/6/21 08184327 94250248 PMID: 7910736
A rapid and simple method for the purification of transglutaminase from Streptoverticillium mobaraense. May 1 1994

3/6/22 08096990 94162749 PMID: 7765335
Chemical synthesis of the gene for microbial transglutaminase from Streptoverticillium and its expression in Escherichia coli. Jan 1994

3/6/23 08096989 94162748 PMID: 7765334
Molecular cloning of the gene for microbial transglutaminase from Streptoverticillium and its expression in Streptomyces lividans. Jan 1994

3/6/24 07824565 93280110 PMID: 8099353
Primary structure of microbial transglutaminase from Streptoverticillium sp. strain s-8112. Jun 5 1993

3/7/6 DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
11620481 99053680 PMID: 9839945
Bacterial pro- transglutaminase from Streptoverticillium mobaraense--purification, characterisation and sequence of the zymogen.
Pasternack R; Dorsch S; Otterbach J T; Robenek I R; Wolf S; Fuchsbauer H L
Fachbereich Chemische Technologie, Fachhochschule Darmstadt, Germany.
European journal of biochemistry / FEBS (GERMANY) Nov 1 1998, 257 (3) p570-6, ISSN 0014-2956
Journal Code: 0107600 Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM
Record type: Completed
The zymogen of bacterial transglutaminase was found during cultivation of Streptoverticillium mobaraense (DSMZ strain) using rabbit antibodies raised against the active enzyme. Ion-exchange chromatography at pH 5.0 yielded a highly purified pro-enzyme. Structure information was obtained by means of Edman degradation and analysis of PCR amplified nucleotide fragments. The data revealed an excess of negatively charged amino acids in the pro-region resulting in a decreased isoelectric point of the zymogen. Additionally, the new sequence gave rise to some modifications to the previously published hypothetical structure of prepro- transglutaminase derived from genomic DNA [Washizu, K., Ando, K., Koikeda, S., Hirose, S., Matsuura, A., Takagi, H., Motoki, M. & Takeuchi, K. (1994) Biosci. Biotechnol. Biochem. 58, 82-87]. Inactive transglutaminase , which carries an activation peptide of 45 amino acids, has a calculated molecular mass of 42445 Da. Its pro-region provides for both suppression of activity and increased thermostability. Furthermore, it could be shown that the micro-organism produces a protease which cleaves pro- transglutaminase at the C-side of Pro45. Rapid transformation of the mature enzyme also occurs by addition of other proteases. During conversion, 43 and 41 amino acid peptides are released by bovine trypsin and dispase from Bacillus polymyxa, respectively. The detection of endogenous substrates in the murein layer makes discussion of the physiological role of bacterial transglutaminases necessary. Record Date Created: 19981222 Record Date Completed: 19981222

3/7/12 DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
10969159 97321857 PMID: 9178559
High-level expression of the chemically synthesized gene for microbial transglutaminase from Streptoverticillium in Escherichia coli.
Kawai M; Takehana S; Takagi H
Central Research Laboratories, Ajinomoto Co., Inc., Kawasaki, Japan.
Bioscience, biotechnology, and biochemistry (JAPAN) May 1997, 61 (5) p830-5, ISSN 0916-8451 Journal Code: 9205717
Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: Completed
We developed a novel approach for the high-level production of a microbial transglutaminase (TGase) from Streptoverticillium in E. coli. The direct expression of the TGase gene in E. coli cells did not cause overproduction, probably due to the harmful influence of TGase activity, which introduces covalent crosslinks between proteins. Therefore, we fused the chemically synthesized TGase gene coding for the entire 331 amino acid residues at the amino terminus to a bacteriophage T7 gene 10 leader peptide (260 amino acids) using an inducible expression vector. The TGase gene was expressed as inclusion bodies in the E. coli cytoplasm. Restoring 15 amino acid residues upstream of the amino terminus of the mature TGase by a two-step deletion of the fusion sequence facilitated solubilization and subsequent proteolytic cleavage, thus releasing mature TGase. Although the mature form had less TGase activity than native TGase, because of the poor refolding rate, these results suggest that this system is suitable for the efficient production of TGase. Record Date Created: 19970731 Record Date Completed: 19970731

3/7/21 DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
08184327 94250248 PMID: 7910736
A rapid and simple method for the purification of transglutaminase from Streptoverticillium mobaraense.
Gerber U; Jucknischke U; Putzien S; Fuchsbauer H L

Fachbereich Chemische Technologie, Fachhochschule Darmstadt, Germany.
Biochemical journal (ENGLAND) May 1 1994, 299 ( Pt 3) p825-9, ISSN 0264-6021 Journal Code: 2984726R
Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: Completed
Transglutaminase from Streptoverticillium mobaraense was partially purified by ion-exchange chromatography on a weak acid material and hydrophobic chromatography. The separation with a strong acid ion-exchanger produces homogeneous transglutaminase , in a single step and with high yields, directly from the centrifuged and filtered culture fluid of the micro-organism. The procedure reproduced several times could be also carried out on a larger scale with the optimized parameters of the laboratory isolations. The purified enzyme demonstrated good storage stability. Record Date Created: 19940617 Record Date Completed: 19940617

3/7/22 DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
08096990 94162749 PMID: 7765335
Chemical synthesis of the gene for microbial transglutaminase from Streptoverticillium and its expression in Escherichia coli.
Takehana S; Washizu K; Ando K; Koikeda S; Takeuchi K; Matsui H; Motoki M; Takagi H
Food Research & Development Laboratories, Ajinomoto Co., Inc., Kawasaki, Japan.
Bioscience, biotechnology, and biochemistry (JAPAN) Jan 1994, 58 (1) p88-92, ISSN 0916-8451 Journal Code: 9205717
Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: Completed
The gene coding for microbial transglutaminase (TGase) from Streptoverticillium , which consists of 331 amino acids, was chemically synthesized. The codons have been substituted for those mainly favored in yeast. Our strategy involved the construction of the TGase gene in five sections (54 oligomers) that contained unique restriction enzyme sites at both ends, which could readily be ligated to form the full-length product. The chemically synthesized gene was inserted downstream from the ompA signal peptide of the E. coli expression vector, pIN-III-ompA, which carries lpp and lac promotors. The resultant plasmid directed the expression of TGase, with the activity being secreted mainly into the periplasmic space of E. coli. The induced gene product was identical with native TGase in size and in immunological properties, though the enzyme activity was low. Record Date Created: 19940405 Record Date Completed: 19940405

3/7/23 DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
08096989 94162748 PMID: 7765334
Molecular cloning of the gene for microbial transglutaminase from Streptoverticillium and its expression in Streptomyces lividans.
Washizu K; Ando K; Koikeda S; Hirose S; Matsuura A; Takagi H; Motoki M; Takeuchi K
Tsukuba Research Laboratories, Amano Pharmaceutical Co., Ltd., Ibaraki, Japan.
Bioscience, biotechnology, and biochemistry (JAPAN) Jan 1994, 58 (1) p82-7, ISSN 0916-8451 Journal Code: 9205717
Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: Completed
The microbial transglutaminase (TGase)-producing strains S-8112 [Agric. Biol. Chem., 53, 2613-2617 (1989)] was identified as a variant of Streptoverticillium mobaraense. We amplified a partial gene fragment by polymerase chain reaction (PCR) using oligonucleotides synthesized from the amino acid sequence of TGase, and cloned the gene for TGase using the PCR amplified fragment as a probe. The gene encoded a precursor of TGase consisting of 406 amino acid residues, which comprised the prepro region of 75 amino acid residues and the mature region of 331 amino acid residues. We expressed the TGase gene in Streptomyces lividans under a tyrosinase promoter, and found an active and mature recombinant enzyme, indicating the processing of the gene product. Record Date Created: 19940405 Record Date Completed: 19940405

3/7/24 DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
07824565 93280110 PMID: 8099353
Primary structure of microbial transglutaminase from Streptoverticillium sp. strain s-8112.
Kanaji T; Ozaki H; Takao T; Kawajiri H; Ide H; Motoki M; Shimonishi Y
Institute for Protein Research, Osaka University, Japan.
Journal of biological chemistry (UNITED STATES) Jun 5 1993, 268 (16) p11565-72, ISSN 0021-9258 Journal Code: 2985121R Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: Completed
The complete amino acid sequence of transglutaminase (EC 2.3.2.13) (TGase), which is produced by a microorganism, Streptoverticillium sp. strain s-8112, and catalyzes the acyl transfer reaction between gamma-carboxyamide groups of glutamine residues in proteins and various primary amines, has been established by a combination of fast atom bombardment mass spectrometry and standard Edman degradation of peptide fragments produced by treatment of the TGase with various proteolytic enzymes and purified by a reversed-phase high performance liquid chromatography. The TGase consists of 331 amino acid residues with a chemical molecular weight of 37,863, in agreement with the observed molecular weight (37,869.2 +/- 8.8) determined from its electrospray ionization mass spectrum. The sequence of the enzyme is very different from those of mammalian TGases represented by guinea pig liver enzyme. The enzyme contains a sole Cys residue, which is essential for its catalytic activity. Hydropathy analysis indicated that the secondary structure of the region around the active site Cys residue is similar to those of mammalian TGases. These results suggest that this microbial protein evolved by a different pathway from that of mammalian TGases and acquired acyl transfer activity during the evolutional process. Record Date Created: 19930707 Record Date Completed: 19930707

**File 5:Biosis Previews(R) 1969-2003/Sep W2 (c) 2003 BIOSIS**

| Set | Items | Description |
|---|---|---|
| S1 | 66 | S1 AND S2 |
| S2 | 8316 | GLUTAMYLTRANSFERASE OR GLUTAMYL(W)TRANSFERASE OR TRANSGLUTAMINASE |
| S3 | 416 | STREPTOVERT? |
| S4 | 66 | S2 AND S3 |

**Added File(s): 155 MEDLINE(R) 1966-2003/Sep W2 (c) format only 2003 The Dialog Corp.**

| | | |
|---|---|---|
| S5 | 19548 | GLUTAMYLTRANSFERASE OR GLUTAMYL(W)TRANSFERASE OR TRANSGLUTAMINASE |
| S6 | 593 | STREPTOVERT? |
| S7 | 90 | S5 AND S6 |
| S8 | 189258 | TRUNCAT? |
| S9 | 0 | S7 AND S8 |
| S10 | 231808 | DELET? |
| S11 | 3 | S7 AND S10 |

4/6/1 14306432 BIOSIS NO.: 200300300461
Production of native-type Streptoverticillium mobaraense transglutaminase in Corynebacterium glutamicum. 2003

4/6/2 14268976 BIOSIS NO.: 200300263005
Transglutaminase inhibitor from milk. 2003

4/6/3 14253219 BIOSIS NO.: 200300247248
Structure of folding intermediates at pH 4.0 and native state of microbial transglutaminase . 2003

4/6/4 14166766 BIOSIS NO.: 200300160795
Gelation of food protein induced by recombinant microbial transglutaminase . 2003

4/6/5 14146550 BIOSIS NO.: 200300140579
Susceptibility of an industrial alpha-lactalbumin concentrate to cross-linking by microbial transglutaminase . 2002

4/6/6 14119054 BIOSIS NO.: 200300113083
Secretion of active-form Streptoverticillium mobaraense transglutaminase by Corynebacterium glutamicum: Processing of the pro-transglutaminase by a cosecreted subtilisin-like protease from Streptomyces albogriseolus. 2003

4/6/7 14092829 BIOSIS NO.: 200300086858
Effects of Ca2+ and sulfhydryl reductant on the polymerization of soybean glycinin catalyzed by mammalian and microbial transglutaminases.2003

4/6/8 14049945 BIOSIS NO.: 200300043974
Crystal structure of microbial transglutaminase from Streptoverticillium mobaraense. 2002

4/6/9 14030843 BIOSIS NO.: 200300024872
Modelling of temperature effects on batch microbial transglutaminase fermentation with Streptoverticillium mobaraense. 2002

4/6/10 14023535 BIOSIS NO.: 200300017564
New gelatin-based hydrogels via enzymatic networking. 2002

4/6/11 13916734 BIOSIS NO.: 200200545555
pH control strategy of batch microbial transglutaminase production with Streptoverticillium mobaraense. 2002

4/6/12 13852338 BIOSIS NO.: 200200481159
Gliadin is a good substrate of several transglutaminases: Possible implication in the pathogenesis of coeliac disease. 2002

4/6/13 13730161 BIOSIS NO.: 200200358982
Pressure inactivation kinetics of microbial transglutaminase from Streptoverticillium mobaraense. 2002

4/6/14 13713689 BIOSIS NO.: 200200342510
Enzyme-assisted chemically induced dimerization (e-ACID): Development and characterization of an in vivo protein modification system. 2002

4/6/15 13618993 BIOSIS NO.: 200200247814
Transglutaminase : Its utilization in the food industry. 2001

4/6/16 13415829 BIOSIS NO.: 200200044650

Wound healing agent 1996

4/6/17 13332010 BIOSIS NO.: 200100539159
Enhancement of apparent thermostability of lipase from Rhizopus sp. by the treatment with a microbial transglutaminase . 2001

4/6/1813296297 BIOSIS NO.: 200100503446
Physicochemical property of transglutaminase crosslinked pig collagen gel. 2001

4/6/1913275016 BIOSIS NO.: 200100482165
Further studies on the site-specific protein modification by microbial transglutaminase . 2001

4/6/20 13189279 BIOSIS NO.: 200100396428
Purification and substrate specificity of transglutaminases from blood and Streptoverticillium mobaraense. 2001

4/6/21 12991250 BIOSIS NO.: 200100198399
Protein-glutaminase from Chryseobacterium proteolyticum, an enzyme that deamidates glutaminyl residues in proteins. Purification, characterization and gene cloning. 2001

4/6/22 12842278 BIOSIS NO.: 200100049427
Substrate specificities of microbial transglutaminase for primary amines. 2000

4/6/23 12836447 BIOSIS NO.: 200100043596
Lysine-rich histone (H1) is a lysyl substrate of tissue transglutaminase : Possible involvement of transglutaminase in the formation of nuclear aggregates in (CAG)n/Qn expansion diseases. 2000

4/6/24 12771332 BIOSIS NO.: 200000524955
Substrate specificity analysis of microbial transglutaminase using proteinaceous protease inhibitors as natural model substrates. 2000

4/6/25 12664741 BIOSIS NO.: 200000418243
Overproduction of microbial transglutaminase in Escherichia coli, in vitro refolding, and characterization of the refolded form. 2000

4/6/26 12644597 BIOSIS NO.: 200000398099
Microbial transglutaminase affects gel properties of golden threadfin-bream and pollack surimi. 2000

4/6/27 12616688 BIOSIS NO.: 200000370190
Use of microbial transglutaminase for the enzymatic biotinylation of antibodies. 2000

4/6/28 12464523 BIOSIS NO.: 200000218025
Biochemical analysis and rheological properties of gluten modified by transglutaminase . 2000

4/6/29 12451333 BIOSIS NO.: 200000204835
Biochemical analysis and rheological properties of gluten modified by transglutaminase . 2000

4/6/3012442922 BIOSIS NO.: 200000196424
Technical approach to simplify the purification method and characterization of microbial transglutaminase produced from Streptoverticillium ladakanum. 2000

4/6/31 12342230 BIOSIS NO.: 200000095732
Molecular weight distributions of alpha-lactalbumin polymers formed by mammalian and microbial transglutaminases. 2000

4/6/32 12201861 BIOSIS NO.: 199900496710
Enzyme immobilization via microbial transglutaminase : A method for the generation of stable sensing surfaces. 1999

4/6/33 11810327 BIOSIS NO.: 199900056436
Cross-linking of mackerel surimi actomyosin by microbial transglutaminase and ultraviolet irradiation. 1998

4/6/34 11754797 BIOSIS NO.: 199900000906
Bacterial pro- transglutaminase from Streptoverticillium mobaraense: Purification, characterisation and sequence of the zymogen. 1998

4/6/35 11665956 BIOSIS NO.: 199800447687
Molecular cloning of the transglutaminase gene from Bacillus subtilis and its expression in Escherichia coli. 1998

4/6/36 11623624 BIOSIS NO.: 199800405820
Microbial transglutaminase production by Streptoverticillium mobaraense: Analysis of amino acid metabolism using mass balances. 1998

4/6/37 11580030 BIOSIS NO.: 199800360726
Purification, characterisation, and gene cloning of transglutaminase from Streptoverticillium cinnamoneum CBS 683.68. 1998

4/6/38 11542892 BIOSIS NO.: 199800324224
Transglutaminase in sporulating cells of Bacillus subtilis. 1998

4/6/39 11485270 BIOSIS NO.: 199800266602
Microbial transglutaminase -mediated synthesis of hapten-protein conjugates for immunoassays. 1998

4/6/40 11445361 BIOSIS NO.: 199800226693
Fed-batch fermentation dealing with nitrogen limitation in microbial transglutaminase production by Streptoverticillium mobaraense. 1998

4/6/41 11429146 BIOSIS NO.: 199800210478
Interfacial dilatational properties of milk proteins cross-linked by transglutaminase . 1998

4/6/42 11365627 BIOSIS NO.: 199800146959
Stoichiometric model for medium design in microbiol transglutaminase production by Streptoverticillium mobaraense. 1997

4/6/43 11310779 BIOSIS NO.: 199800092111
Optimization of microbial transglutaminase production using experimental designs. 1997

4/6/44 11084887 BIOSIS NO.: 199799706032
Modification of several proteins by using Ca-2+-independent microbial transglutaminase with high-pressure treatment. 1997

4/6/45 11084886 BIOSIS NO.: 199799706031
Improvement of the pH-solubility profile of sodium caseinate by using Ca-2+-independent microbial transglutaminase with gelatin. 1997

4/6/46 11028106 BIOSIS NO.: 199799649251
High-level expression of the chemically synthesized gene for microbial transglutaminase from Streptoverticillium in Escherichia coli. 1997

4/6/47 10988050 BIOSIS NO.: 199799609195
A fluorescent substrate of transglutaminase for detection and characterization of glutamine acceptor compounds. 1997

4/6/48 10742477 BIOSIS NO.: 199799363622
Transglutaminase from Streptoverticillium ladakanum and application to minced fish product. 1996

4/6/49 10712852 BIOSIS NO.: 199799333997
Improvement in the functional properties of gluten by protease digestion or acid hydrolysis followed by microbial transglutaminase treatment. 1996

4/6/50 10512470 BIOSIS NO.: 199699133615
Screening the microorganism and some factors for the production of transglutaminase . 1996

4/6/51 10508225 BIOSIS NO.: 199699129370
Influence of gelatin matrices cross-linked with transglutaminase on the properties of an enclosed bioactive material using beta-galactosidase as model system. 1996

4/6/52 10416677 BIOSIS NO.: 199699037822
Deamidation of several food proteins using free and immobilized Ca-2+-independent microbial transglutaminase . 1996

4/6/53 10416662 BIOSIS NO.: 199699037807
Retort-resistant tofu prepared by incubation with microbial transglutaminase . 1996

4/6/54 10335291 BIOSIS NO.: 199698790209
Medium design based on stoichiometric analysis of microbial transglutaminase production by Streptoverticillium mobaraense. 1996

4/6/55 10287544 BIOSIS NO.: 199698742462
Incorporation of lysine- and lysine dipeptides into alpha-s1-casein by Ca-2+-independent microbial transglutaminase . 1996

4/6/56 10223420 BIOSIS NO.: 199698678338
Enhanced susceptibility to transglutaminase reaction of alpha-lactalbumin in the molten globule state. 1996

4/6/57 10192746 BIOSIS NO.: 199698647664
Crosslinking of mackerel muscle proteins by microbial transglutaminase . 1995

4/6/58 09486668 BIOSIS NO.: 199497495038
Strength of Protein Gels Prepared with Microbial Transglutaminase as Related to Reaction Conditions. 1994

4/6/59 09280946 BIOSIS NO.: 199497289316
A rapid and simple method for the purification of transglutaminase from Streptoverticillium mobaraense. 1994

4/6/60 09260620 BIOSIS NO.: 199497268990
Changes caused by microbial transglutaminase on physical properties of thermally induced soy protein gels. 1994

4/6/61 09229647 BIOSIS NO.: 199497238017
Molecular cloning of the gene for microbial transglutaminase from Streptoverticillium and its expression in Streptomyces lividans. 1994

4/6/62 09229646 BIOSIS NO.: 199497238016

Chemical synthesis of the gene for microbial transglutaminase from Streptoverticillium and its expression in Escherichia coli. 1994

4/6/63 08899419 BIOSIS NO.: 199396050920
Primary structure of microbial transglutaminase from Streptoverticillium sp. strain s-8112. 1993

4/6/64 07294683 BIOSIS NO.: 000090074570
THE EFFECT OF MICROBIAL TRANSGLUTAMINASE ON GELATION OF MYOSIN B MYOSIN AND ACTIN STUDIES ON APPLICATION OF TRANSGLUTAMINASE TO MEAT AND MEAT PRODUCTS PART II 1990

4/6/65 06929598 BIOSIS NO.: 000089062992
POLYMERIZATION OF SEVERAL PROTEINS BY CALCIUM-INDEPENDENT TRANSGLUTAMINASE DERIVED FROM MICROORGANISMS 1989

4/6/66 06929597 BIOSIS NO.: 000089062991
PURIFICATION AND CHARACTERIZATIONS OF A NOVEL TRANSGLUTAMINASE DERIVED FROM MICROORGANISMS 1989

4/7/16 DIALOG(R)File 5:Biosis Previews(R) (c) 2003 BIOSIS. All rts. reserv.
13415829 BIOSIS NO.: 200200044650
Wound healing agent
AUTHOR: Kitahara Y; Ohsumi T; Eto Y; Takano S
AUTHOR ADDRESS: Kawasaki**Japan
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1187 (2):p1163 June 11, 1996
ISSN: 0098-1133 DOCUMENT TYPE: Patent RECORD TYPE: Citation LANGUAGE: English

4/7/34 DIALOG(R)File 5:Biosis Previews(R) (c) 2003 BIOSIS. All rts. reserv.
11754797 BIOSIS NO.: 199900000906
Bacterial pro- transglutaminase from Streptoverticillium mobaraense: Purification, characterisation and sequence of the zymogen.
AUTHOR: Pasternack Ralf; Dorsch Simone; Otterbach Jens T; Robenek Isabella R; Wolf Sabine; Fuchbauer Hans-Lothar(a)
AUTHOR ADDRESS: (a)Fachbereich Chemische Technol., Fachhochschule Darmstadt, Hochschulstrasse 2, D-64289 Darmstadt**Germany
JOURNAL: European Journal of Biochemistry 257 (3):p570-576 Nov., 1998 ISSN: 0014-2956 DOCUMENT TYPE: Article RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: The zymogen of bacterial transglutaminase was found during cultivation of Streptoverticillium mobaraense (DSMZ strain) using rabbit antibodies raised against the active enzyme. Ion-exchange chromatography at pH 5.0 yielded a highly purified pro-enzyme. Structure information was obtained by means of Edman degradation and analysis of PCR amplified nucleotide fragments. The data revealed an excess of negatively charged amino acids in the pro-region resulting in a decreased isoelectric point of the zymogen. Additionally, the new sequence gave rise to some modifications to the previously published hypothetical structure of prepro- transglutaminase derived from genomic DNA (Washizu, K., Ando, K., Koikeda, S., Hirose, S., Matsuura, A., Takagi, H., Motoki, M. & Takeuchi, K. (1994) Biosci. Biotechnol. Biochem. 58, 82-87). Inactive transglutaminase , which carries an activation peptide of 45 amino acids, has a calculated molecular mass of 42445 Da. Its pro-region provides for both suppression of activity and increased thermostability. Furthermore, it could be shown that the micro-organism produces a protease which cleaves pro- transglutaminase at the C-side of Pro45. Rapid transformation of the mature enzyme also occurs by addition of other proteases. During conversion, 43 and 41 amino acid peptides are released by bovine trypsin and dispase from Bacillus polymyxa, respectively. The detection of endogenous substrates in the murein layer makes discussion of the physiological role of bacterial transglutaminases necessary.

4/7/36 DIALOG(R)File 5:Biosis Previews(R) (c) 2003 BIOSIS. All rts. reserv.
11623624 BIOSIS NO.: 199800405820
Microbial transglutaminase production by Streptoverticillium mobaraense: Analysis of amino acid metabolism using mass balances.
AUTHOR: Zhu Y(a); Rinzema A; Bonarius H P J; Tramper J; Bol J
AUTHOR ADDRESS: (a)TNO Nutr. Food Res. Inst., Industrial Microbiol. Div., Dep. Bioprocess Biomonitoring, P.O. Box 3**Netherlands
JOURNAL: Enzyme and Microbial Technology 23 (3-4):p216-226 Aug. 15-Sept., 1998 ISSN: 0141-0229
DOCUMENT TYPE: Article RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: Metabolic flows, especially those of amino acids, were determined and analyzed at different stages of a batch fermentation for microbial transglutaminase production by Streptoverticillium mobaraense. The method is mainly based on mass balances and measurements of amino acids and other metabolites. The measurements included the consumption rate of glucose, intake rates of all amino acids and production rates of carbon dioxide, cell mass, and transglutaminase . Three groups of metabolic flows were determined by three different methods. Those in the first group are determined by solely using measurement results. The second group deals with the synthesis of most amino acids. The metabolic flows were determined by using a mass-balancing method considering the contribution of these amino acids to the synthesis of cells and product, ie., transglutaminase . The third group includes the reactions covering all other important intermediates. The metabolic flows in this group were calculated by a metabolite-balancing method. Metabolic flows during different fermentation phases were thus determined. The distribution of metabolic flows of amino acids implies that growth and transglutaminase production are active as long as there are free amino acids available in the medium. An important factor which limits further growth and production is probably the cross-linking action of transglutaminase on the nitrogen source in the medium. The results suggest that a nitrogen source other than peptone and/or amino acids might improve growth and production.

4/7/40 DIALOG(R)File 5:Biosis Previews(R) (c) 2003 BIOSIS. All rts. reserv.
11445361 BIOSIS NO.: 199800226693
Fed-batch fermentation dealing with nitrogen limitation in microbial transglutaminase production by Streptoverticillium mobaraense.
AUTHOR: Zhu Y(a); Rinzema A; Tramper J; De Bruin E; Bol J
AUTHOR ADDRESS: (a)TNO Nutr. Food Res. Inst., Ind. Microbiol. Div., Dep. Bioprocess Technol., P.O. Box 360, 3700 AJ**Netherlands
JOURNAL: Applied Microbiology and Biotechnology 49 (3):p251-257 March, 1998 ISSN: 0175-7598
DOCUMENT TYPE: Article RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: In the later stages of a batch fermentation for microbial transglutaminase production by Streptoverticillium mobaraense the availability of a nitrogen source accessible to the microorganism becomes critical. Fed-batch fermentation is investigated with the aim of avoiding this substrate limitation. When peptone is used as a nitrogen source in the feed, no significant improvement of growth and transglutaminase production is observed. This is probably due to crosslinking of the nitrogen source by the transglutaminase produced. Using an inorganic nitrogen source alone does not give satisfactory growth and production. A fed-batch fermentation method has thus been developed to deal with this problem. In the batch phase of the fermentation, an initial medium containing peptone, designed on the basis of the stoichiometric requirements of the microorganism, is used to ensure optimal growth. In the feeding phase, ammonium sulphate is used instead to avoid the crosslinking effect. The feed composition, mainly the amount of nitrogen and carbon source, is also based on the stoichiometric requirements of the organism, taking into account the replacement of peptone by ammonium sulphate. By using this fed-batch fermentation technique, cell-mass dry weight and transglutaminase production could be increased by 33% and 80% respectively, compared to those in a batch fermentation.

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11365627 BIOSIS NO.: 199800146959
Stoichiometric model for medium design in microbiol transglutaminase production by Streptoverticillium mobaraense.
AUTHOR: Zhu Y(a); Rinzema A; Tramper J; Bol J(a)
AUTHOR ADDRESS: (a)TNO Nutr. Food Res. Inst., Dep. Biprocessing Biomonitoring, P.O. Box 360, 3700 AJ Zeist**Netherlands
JOURNAL: Mededelingen Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen Universiteit Gent 62 (4 A-B):p1695-1696 1997
CONFERENCE/MEETING: Eleventh Forum for Applied Biotechnology, Faculty of Agricultural and Applied Biological Sciences Gent, Belgium September 25-26, 1997
RECORD TYPE: Citation LANGUAGE: English

4/7/43 DIALOG(R)File 5:Biosis Previews(R) (c) 2003 BIOSIS. All rts. reserv.
11310779 BIOSIS NO.: 199800092111
Optimization of microbial transglutaminase production using experimental designs.
AUTHOR: Junqua M; Duran R; Gancet C; Goulas P(a)
AUTHOR ADDRESS: (a)Lab. Ecologie Moleculaire, I.B.E.A.S., Univ. Pau et des Pays de l'Apour, Ave. de l'Universite, F**France
JOURNAL: Applied Microbiology and Biotechnology 48 (6):p730-734 Dec., 1997 ISSN: 0175-7598 DOCUMENT TYPE: Article RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: In prokaryotes, transglutaminase (TGase) has been found only in actinomycetes from the genus Streptoverticillium . The role of this TGase, as well as the mechanism regulating the enzyme expression, are still unknown. In order to improve TGase production by Streptoverticillium cinnamoneum CBS 683.68 and simultaneously elucidate the relationship between growth and TGase activity, we decided to study these two responses using different designs of statistical analysis. Among the five factors tested, casein, glycerol, peptones, yeast extract and oligoelements, only oligoelements were found to have no effect either on growth or on TGase production in a complete factorial design. The two factors casein and glycerol were found to have a highly significant effect on both dry weights and TGase activity in a Box-Behnken design used to improve the model. Finally, the TGase activity was increased three times to reach 0.331+-0.038 U/ml with optimum concentrations of casein (38.4 g/l) and glycerol (31.2 g/l) calculated with the help of a composite design. In the course of these experiments, the two responses varied in the same way, demonstrating that growth and TGase production were tightly correlated under the conditions described. However, TGase was produced during the stationary phase of growth in optimized medium, indicating that the enzyme production could be induced.

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10512470 BIOSIS NO.: 199699133615

Screening the microorganism and some factors for the production of transglutaminase .
AUTHOR: Wu Jei-Won; Tsai Guo-Jane(a); Jiang Shann-Tzong
AUTHOR ADDRESS: (a)Grad. Inst. Marine Food Sci., Natl. Taiwan Ocean Univ., Keelung**Taiwan
JOURNAL: Journal of the Chinese Agricultural Chemical Society 34 (2):p 228-240 1996 ISSN: 0578-1736
DOCUMENT TYPE: Article RECORD TYPE: Abstract LANGUAGE: Chinese; Non-English SUMMARY LANGUAGE: Chinese; English
ABSTRACT: Streptoverticillium ladakanum can secrete extracellular transglutaminase (TGase) into a medium. The effects of various carbon and nitrogen sources on TGase production were investigated, and the results showed that glycerol and yeast extract were the best carbon and nitrogen sources in the medium, respectively. The TGase activity in the culture reached a maximum when the culture broth with 10-3 apprx 10-4 cfu/mL inoculum was cultivated at 25 apprx 28 degree C and 100 apprx 150 rpm for 4 days. The addition of 22 ppm of an antibiotic, colistin, could increase TGase productivity by 30%, where the TGase productivity was 2.1 unit/mL.

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10335291 BIOSIS NO.: 199698790209
Medium design based on stoichiometric analysis of microbial transglutaminase production by Streptoverticillium mobaraense.
AUTHOR: Zhu Y(a); Rinzema A; Tramper J; Bol J
AUTHOR ADDRESS: (a)TNO Nutrition, Food Res. Inst., Dep. Bioprocessing Biomonitoring, 3700 AJ Zeist**Netherlands
JOURNAL: *Biotechnology and Bioengineering* 50 (3):p291-298 1996 ISSN: 0006-3592 DOCUMENT TYPE: Article
RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: A stoichiometric model was developed for the application of medium design in microbial transglutaminase production by Streptoverticillium mobaraense. The model avoids dealing with all the metabolic reactions involved by simply lumping them into a single reaction. With the help of measurement results, an analysis of the nutrients' roles, and biochemical knowledge of the microorganism, all stoichiometric coefficients in the model were calculated. These coefficients were used for medium design. With this designed medium, microbial transglutaminase activity was increased fourfold, compared to that in the basal medium.

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09280946 BIOSIS NO.: 199497289316
A rapid and simple method for the purification of transglutaminase from Streptoverticillium mobaraense.
AUTHOR: Gerber Ulrike; Jucknischke Ute; Putzien Sybille; Fuchsbauer Hans-Lothar(a)
AUTHOR ADDRESS: (a)Fachbereich Chemische Technol., Fachhochschule Darmstadt, Hochschulstrasse 2, D-64289 Darmstadt**Germany
JOURNAL: Biochemical Journal 299 (3):p825-829 1994 ISSN: 0264-6021 DOCUMENT TYPE: Article
RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: Transglutaminase from Streptoverticillium mobaraense was partially purified by ion-exchange chromatography on a weak acid material and hydrophobic chromatography. The separation with a strong acid ion-exchanger produces homogeneous transglutaminase , in a single step and with high yields, directly from the centrifuged and filtered culture fluid of the micro-organism. The procedure reproduced several times could be also carried out on a larger scale with the optimized parameters of the laboratory isolations. The purified enzyme demonstrated good storage stability.

4/7/63 DIALOG(R)File 5:Biosis Previews(R) (c) 2003 BIOSIS. All rts. reserv.
08899419 BIOSIS NO.: 199396050920
Primary structure of microbial transglutaminase from Streptoverticillium sp. strain s-8112.
AUTHOR: Kanaji Toshiya; Ozaki Hiroshi; Takao Toshifumi; Kawajiri Hideo; Ide Hiroyuki; Motoki Masao; Shimonishi Yasutsugu(a)
AUTHOR ADDRESS: (a)Inst. Protein Res., Osaka Univ., Yamadoaka 3-2, Suita, Osaka 656**Japan
JOURNAL: Journal of Biological Chemistry 268 (16):p11565-11572 1993 ISSN: 0021-9258 DOCUMENT TYPE: Article
RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: The complete amino acid sequence of transglutaminase (EC 2.3.2.13) (TGase), which is produced by a microorganism, Streptoverticillium sp. strain s-8112, and catalyzes the acyl transfer reaction between gamma-carboxyamide groups of glutamine residues in proteins and various primary amines, has been established by a combination of fast atom bombardment mass spectrometry and standard Edman degradation of peptide fragments produced by treatment of the TGase with various proteolytic enzymes and purified by a reversed-phase high performance liquid chromatography. The TGase consists of 331 amino acid residues with a chemical molecular weight of 37,863, in agreement with the observed molecular weight (37,869.2 +- 8.8) determined from its electrospray ionization mass spectrum. The sequence of the enzyme is very different from those of mammalian TGases represented by guinea pig liver enzyme. The enzyme contains a sole Cys residue, which is essential for its catalytic activity. Hydropathy analysis indicated that the secondary structure of the region around the active site Cys residue is similar to those of mammalian TGases. These results suggest that this microbial protein evolved by a different pathway from that of mammalian TGases and acquired acyl transfer activity during the evolutional process.

11/6/1 (Item 1 from file: 5) 11028106 BIOSIS NO.: 199799649251
High-level expression of the chemically synthesized gene for microbial transglutaminase from Streptoverticillium in Escherichia coli. 1997

11/6/2 (Item 1 from file: 155) 15192525 22617502 PMID: 12732581
Production of native-type Streptoverticillium mobaraense transglutaminase in Corynebacterium glutamicum. May 2003

11/6/3 (Item 2 from file: 155) 10969159 97321857 PMID: 9178559
High-level expression of the chemically synthesized gene for microbial transglutaminase from Streptoverticillium in Escherichia coli. May 1997

11/K/2 (Item 1 from file: 155) DIALOG(R)File 155:(c) format only 2003 The Dialog Corp. All rts. reserv.
Production of native-type Streptoverticillium mobaraense transglutaminase in Corynebacterium glutamicum. We previously observed secretion of active-form transglutaminase in Corynebacterium glutamicum by coexpressing the subtilisin-like protease SAM-P45 from Streptomyces albogriseolus to process the prodomain. However, the N-terminal amino acid sequence of the transglutaminase differed from that of the native Streptoverticillium mobaraense enzyme. In the present work we have used site-directed mutagenesis to generate an... ... cleavage site in the C-terminal region of the prodomain. As a result, native-type transglutaminase was secreted. ...; Structure, Tertiary; Recombinant Proteins--biosynthesis--BI; Recombinant Proteins--chemistry--CH; Recombinant Proteins--genetics--GE; Sequence Deletion ; Transglutaminases--chemistry--CH

11/K/3 (Item 2 from file: 155)
DIALOG(R)File 155:(c) format only 2003 The Dialog Corp. All rts. reserv.
High-level expression of the chemically synthesized gene for microbial transglutaminase from Streptoverticillium in Escherichia coli. We developed a novel approach for the high-level production of a microbial transglutaminase (TGase) from Streptoverticillium in E. coli. The direct expression of the TGase gene in E. coli cells did... ... acid residues upstream of the amino terminus of the mature TGase by a two-step deletion of the fusion sequence facilitated solubilization and subsequent proteolytic cleavage, thus releasing mature TGase. Although...

11/7/2 (Item 1 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2003 The Dialog Corp. All rts. reserv.
15192525 22617502 PMID: 12732581
Production of native-type Streptoverticillium mobaraense transglutaminase in Corynebacterium glutamicum.
Date Masayo; Yokoyama Kei-ichi; Umezawa Yukiko; Matsui Hiroshi; Kikuchi Yoshimi
Institute of Life Sciences, Ajinomoto Co., Inc., 1-1 Suzuki-cho, Kawasaki-ku 210-8681, Japan.
Applied and environmental microbiology (United States) May 2003, 69 (5) p3011-4, ISSN 0099-2240 Journal Code: 7605801
Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: Completed
We previously observed secretion of active-form transglutaminase in Corynebacterium glutamicum by coexpressing the subtilisin-like protease SAM-P45 from Streptomyces albogriseolus to process the prodomain. However, the N-terminal amino acid sequence of the transglutaminase differed from that of the native Streptoverticillium mobaraense enzyme. In the present work we have used site-directed mutagenesis to generate an optimal SAM-P45 cleavage site in the C-terminal region of the prodomain. As a result, native-type transglutaminase was secreted. Record Date Created: 20030506 Record Date Completed: 20030805